

WHAT IS CLAIMED IS:

1. A magnetic thin film, comprising:

a resin having magnetic fine particles dispersed therein.

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2. A magnetic thin film as described in Claim 1, wherein:

said magnetic fine particles contain at least one metal element selected from a group consisting of Fe, Ni, Co, Mn, and Cr.

3. A magnetic thin film as described in Claim 1, wherein:

said resin is a non-photosensitive resin or a photosensitive resin.

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4. A magnetic thin film as described in Claim 1, wherein:

said resin is an organic magnetic polymer.

5. A magnetic thin film as described in Claim 4, wherein:

said organic magnetic polymer is a cross conjugated polycarbene or a conjugated polymer that has a main chain of polyacetylene and polydiacetylene.

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6. A magnetic thin film, wherein:

said thin film is constructed from magnetic fine particles, and said fine particles are aggregated so that said fine particles are in contact with each other.

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7. A magnetic thin film as described in Claim 1, wherein:

said fine particle comprises a magnetic particle and an insulating film that surrounds the perimeter of said magnetic particle.

5 8. A manufacturing method for a magnetic thin film, comprising:

a process for dispersing magnetic fine particles in a medium;

a process for coating said medium on top of an insulating film;

a process for heat treating and solidifying said medium.

10 9. A manufacturing method for a magnetic thin film as described in Claim 8, wherein:

said medium is a non-photosensitive resin solution or a photosensitive resin solution.

15 10. A manufacturing method for a magnetic thin film, comprising:

a process for dispersing magnetic fine particles in a medium;

a process for coating said medium on top of an insulating film;

a process for heat treating, evaporating, and removing said medium.

11. A manufacturing method for a magnetic thin film as described in Claim 10, wherein:

said medium is toluene.

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12. A magnetic component, comprising:

a first magnetic thin film and a second magnetic thin film being magnetic thin films described in Claim 1;

said first magnetic thin film being formed on top of a semiconductor
5 substrate via an insulating film;

a thin film conductor being formed in a spiral shape on top of said first magnetic thin film;

a second resin that fills spaces in said spiral thin film conductor;

10 said second magnetic thin film being formed on top of said thin film
conductor and said second resin.

13. A magnetic component as described in Claim 12, wherein:

said second resin is a magnetic thin film as described in Claim 1.

14. A magnetic component, comprising:

15 a third magnetic thin film and a fourth magnetic thin film being magnetic thin films described in Claim 6;

said third magnetic thin film being formed on top of a semiconductor substrate via an insulating film;

a thin film conductor being formed in a spiral shape on top of said third magnetic thin film;

20 said third magnetic thin film being formed in spaces in said spiral thin film
conductor;

said fourth magnetic thin film being formed on top of said thin film conductor and said third magnetic thin film.

15. A manufacturing method for a magnetic component, comprising:

a first magnetic thin film and a second magnetic thin film being magnetic thin films described in Claim 1;

5 a process for forming said first magnetic thin film on top of a semiconductor substrate via an insulating film;

a process for forming a thin film conductor in a spiral shape on top of said first magnetic thin film;

a process for filling a second resin in spaces in said spiral thin film conductor;

10 a process for forming said second magnetic thin film on top of said thin film conductor and said second resin.

16. A manufacturing method for a magnetic component as described in Claim 15, wherein:

15 said second resin is a magnetic thin film described in Claim 1.

17. A manufacturing method for a magnetic component, comprising:

a third magnetic thin film and a fourth magnetic thin film being magnetic thin films described in Claim 6;

20 a process for forming said third magnetic thin film on top of a semiconductor substrate via an insulating film;

a process for forming a spiral-shaped thin film conductor on top of said third magnetic thin film;

a process for forming said third magnetic thin film in spaces in said spiral-shaped thin film conductor;

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a process for forming said fourth magnetic thin film on top of said thin film conductor and said third thin film.

18. A magnetic component, comprising:

5 a first magnetic thin film and a second magnetic thin film being magnetic thin films described in Claim 1;

said first magnetic thin film being formed on top of an insulating substrate via an insulating film;

10 a thin film conductor being formed in a spiral shape on top of said first magnetic thin film;

a second resin filling spaces in said spiral-shaped thin film conductor;
said second magnetic thin film being formed on top of said thin film conductor and said second resin.

19. A magnetic component as described in Claim 18, wherein:

said second resin is a magnetic thin film as described in Claim 1.

15 20. A magnetic component, comprising:

a third magnetic thin film and a fourth magnetic thin film being magnetic thin films described in Claim 6;

said third magnetic thin film being formed on top of an insulating substrate via an insulating film;

20 a thin film conductor being formed in a spiral shape on top of said third magnetic thin film;

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said third magnetic thin film being formed in spaces in said spiral-shaped thin film conductor;

said fourth magnetic thin film being formed on top of said thin film conductor and said third magnetic thin film.

5 21. A magnetic component as described in Claim 12, wherein:
said magnetic component is a transformer.

22. A magnetic component as described in Claim 12, wherein:
said magnetic component is a power conversion device.\

10 23. A lead wire, wherein:
said lead wire is covered with a magnetic thin film described in Claim 1.

24. A magnetic component, comprising:
a lead wire as described in Claim 23 being used as a coil.

15 25. A current sensor, comprising:
a magnetic sensor being provided on a lead wire described in Claim 23.

26. A magnetic component as described in Claim 12, comprising:
an insulating film being between said first magnetic thin film and said thin film conductor and said second resin and between said thin film conductor and said second resin and said second magnetic thin film.

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27. A magnetic component as described in Claim 12, wherein:

said thin film conductor and said second resin is formed as two layers via an insulating film.

28. A power conversion device, comprising:

5 a magnetic component, comprising:

a magnetic thin film as described in Claim 1 being formed on top of a semiconductor integrated circuit substrate via an insulating film;

a thin film conductor being formed in a spiral shape on top of said magnetic thin film;

10 a second resin being filled in spaces in said spiral-shaped thin film conductor;

said magnetic component being mounted on top of a wiring substrate;

said magnetic component being resin sealed by a resin in which magnetic fine particles are dispersed.

15 29. A power conversion device, comprising:

a magnetic component, comprising:

a magnetic thin film as described in Claim 1 being formed on top of a semiconductor integrated circuit substrate via an insulating film;

20 a thin film conductor being formed in a spiral shape on top of said magnetic film;

a second resin being filled in spaces in said spiral-shaped thin film conductor;

said magnetic component being mounted onto a lead frame;

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a lead terminal being connected to said magnetic component by a metal thin wire;

said lead terminal and said lead frame and said magnetic component are resin sealed by a resin in which magnetic fine particles are dispersed.

5 30. A power conversion device as described in Claim 28, wherein:

said thin film conductor and said second resin are formed in two layers via an insulating film.

31. A power conversion device as described in Claim 28, wherein:

10 an insulating film is formed on top of said thin film conductor and said second resin.

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